Audioconferencing System
–The Voice–

INSTALLATION AND USER MANUAL

Audioconferencing System
–The Voice–

INSTALLATION AND USER'S MANUAL

The information contained in this manual is property of Aethra Telecomunicazioni s.r.l. it is subject to change without notice and does not involve any responsibility by Aethra Telecomunicazioni s.r.l.

© Copyright Aethra Telecomunicazioni Srl 1999.
All rights reserved
Rev. 2 – October 2000 Cod. 074000116
This manual is composed of 33 pages

Table of Contents

1. INTRODUCTION 7

1.1. System features 8

2. GETTING STARTED 9

2.1. Connection and supply module for the audio conferencing system 9

2.2. Connecting the Audio conferencing system 10

2.3. How to ensure better performance 11

3. USING THE AUDIO CONFERENCING UNIT 13

3.1. Adjusting the phone ringer volume 13

3.2. Selecting pulse dialing 13

3.3. Outgoing calls 14

3.4. Incoming calls 14

3.5. phonebook 14

3.5.1. Memorization 14

3.5.2. Cancelling the operation 15

3.5.3. Cancelling the number 15

3.5.4. Location not free 15

3.6. Calling a memorized number 15

3.7. Speaker Volume 16

3.8. Redial 16

3.9. Phone 16

3.10. Mute 16

3.11. Hold 17

3.12. Flash 17

3.13. Recorder output 17

3.14. Switch settings 17

4. USING EXTENSION MICROPHONES 19

4.1. Connecting extension microphones 19

4.2. Setting up of the external microphones for the best pickup 19

4.3. Switching on a microphone 21

4.4. Muting a microphone....21

5. TROUBLESHOOTING AND MAINTENANCE....22

5.1. Preventive maintenance....22

5.2. Troubleshooting 22

6. TECHNICAL SPECIFICATIONS 25

6.1. Use and storage conditions....26

6.2. Reference regulations (CE mark and reliability tests) 26

7. FCC REQUIREMENTS 29

8. CTR21 APPROVAL WARNING....31

SAFETY RULES

The change from cold to hot environments can cause the formation of condensate inside the device. To avoid malfunctioning, wait at least 1 hour before connecting the device to the supply mains.

Warning: for power supply connection use an easily accessible outlet located near the device.
Never remove the mains plug for permanent connection.

WARNING: RISK OF ELECTRIC SHOCK
The power supply used by this device involves lethal voltage levels.

Do not access internal parts of the device (and/or of the power supply unit).

If objects or liquids penetrate inside the device, immediately disconnect the power supply cable. Before using the device again, have it checked by specialized staff.

Refer to qualified staff for service.

In case of intervention, always check that the power supply has been completely and successfully disconnected.

In case of fire, absolutely avoid using water to extinguish it.

WARNINGS

CAUTION:
Many of the components used in this device are sensitive to electrostatic charge.

In case of manipulation of the connection cables, disconnect the power supply and avoid direct contacts with the connector terminals.

Failure to comply with these warnings could cause permanent damage to device.

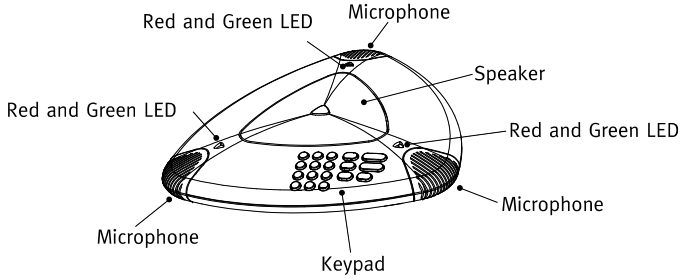
CLEANING

To clean the device use a soft cloth either dry or soaked with little detergent. Never use any type of solvents, such as alcohol or gasoline, to avoid damaging the finish.

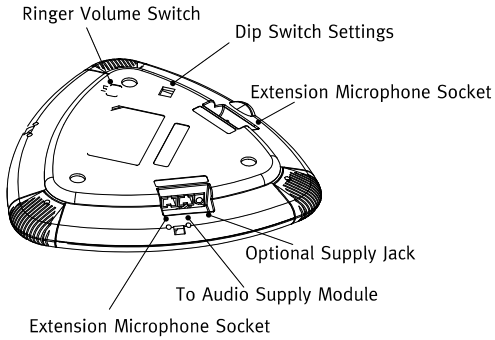
1. INTRODUCTION

The Audio Conferencing System is capable of providing actual "full duplex" communication without the noise, echo and feedback common in most speakerphones. Designed to work with an analog telephone line, the system features advanced Digital Signal Processing and software controlled functions. It's easy to use and will ensure that you always receive high fidelity sound during your conference calls.

TOP



BOTTOM



1.1. System features

- Digital signal processing (DSP) technology
- Full duplex, interactive operation for natural conversation
- Built-in telephone dial pad - no separate telephone required
- Pulse or tone dialing mode
- Phonebook with 100 numbers
- Built-in loudspeaker
- Software controlled room noise monitors and telephone line noise monitors
- Automation Gain Control to minimize talking loudness variations
- Ringer tone switch
- Ordinary telephone connector
- One auxiliary jack for recording a conference
- Expandability to include two extension microphones

2. GETTING STARTED

For correct installation, follow the instructions given below. This will ensure proper operation of the unit.

The Audio Conferencing System includes the following items:

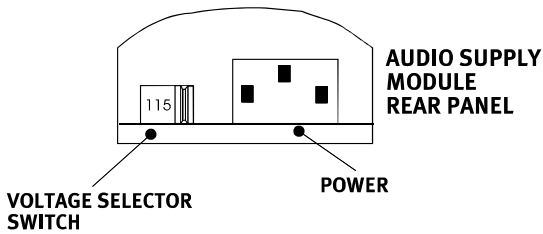
- Audio Conferencing Unit (ACU)
- Audio Supply Module (ASM)
- a black 6 meter (20 ft) cable with two RJ-45 modular plugs to connect the Audio Conferencing Unit to the Audio Supply Module
- þa black 4 meter (13 ft) cable with two RJ-11 modular plugs for connection to any analog telephone network
- a power supply cable to connect the Audio Conferencing Unit to the power-line supply
- user's guide

2.1. Connection and supply module for the audio conferencing system

The Audio Conferencing Unit is intended for use when supplied with power from the Audio Supply Module. The module includes a switch on the power supply to change the supply input voltage from 115VAC/60Hz to 230VAC/50Hz.

WARNING

Before Use make sure to select the right power supply on VOLTAGE SELECTOR SWITCH



2.2. Connecting the Audio conferencing system

WARNING

Connect all auxiliary cables before connecting the unit to the mains.

1. Plug the cable from the AUDIO SUPPLY MODULE into the Main Supply Socket under the left side of the AUDIO CONFERENCING UNIT.

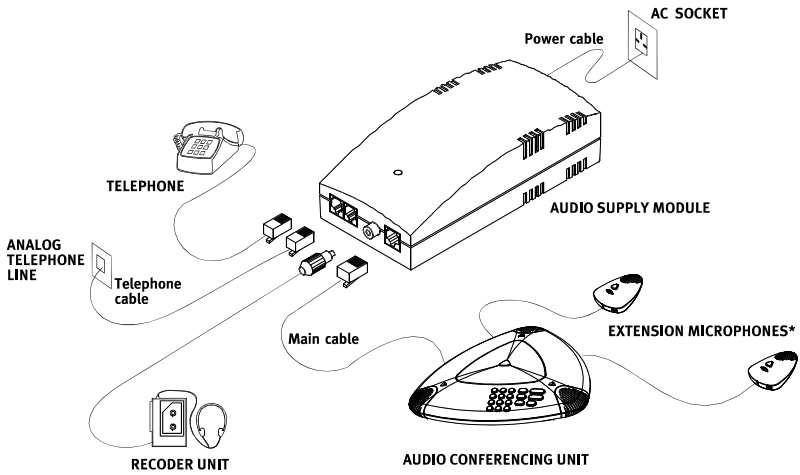
2. Plug the cable from the AUDIO SUPPLY MODULE into a wall jack of a standard analog telephone line.

3. Plug the power cable from the AUDIO SUPPLY MODULE into an AC socket.

4. The AUDIO CONFERENCING UNIT will run a self-test. The LEDs will flash and then you will hear a tone.

5. Place the AUDIO CONFERENCING UNIT on a stable surface, and dial the desired telephone number.

6. OPTIONAL. To utilize the privacy feature, plug the cable from a regular telephone unit into the "Phone" socket on the ASM.



*Optionals

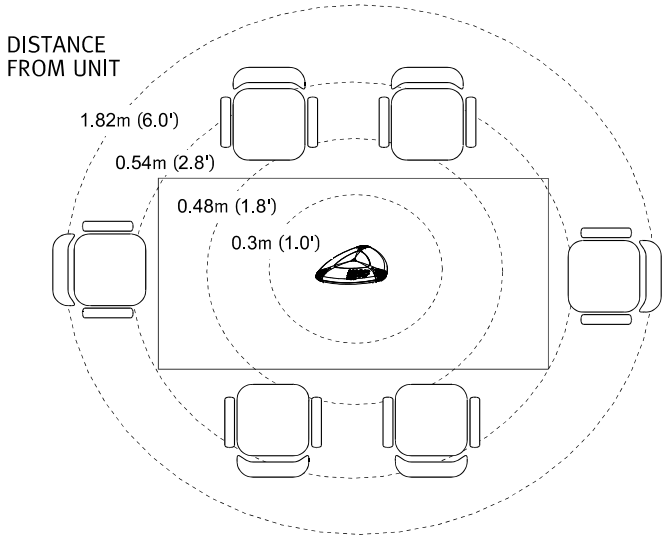
WARNING

- NEVER install telephone wiring during a lightning storm.
- NEVER install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- NEVER touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- ALWAYS USE CAUTION when installing or connecting telephone lines.
- ALWAYS place the AUDIO SUPPLY MODULE on the floor

2.3. How to ensure better performance

For best microphone coverage, place Audio Conferencing Unit in the center of the conference table.

Participants should be seated uniformly around the ACU to minimize level differences in the pick-up of voices. In noisier rooms, participants need to be closer to the module for clearer pickup of their voices. For optimum performance, use the figure below to determine talker distance to unit.

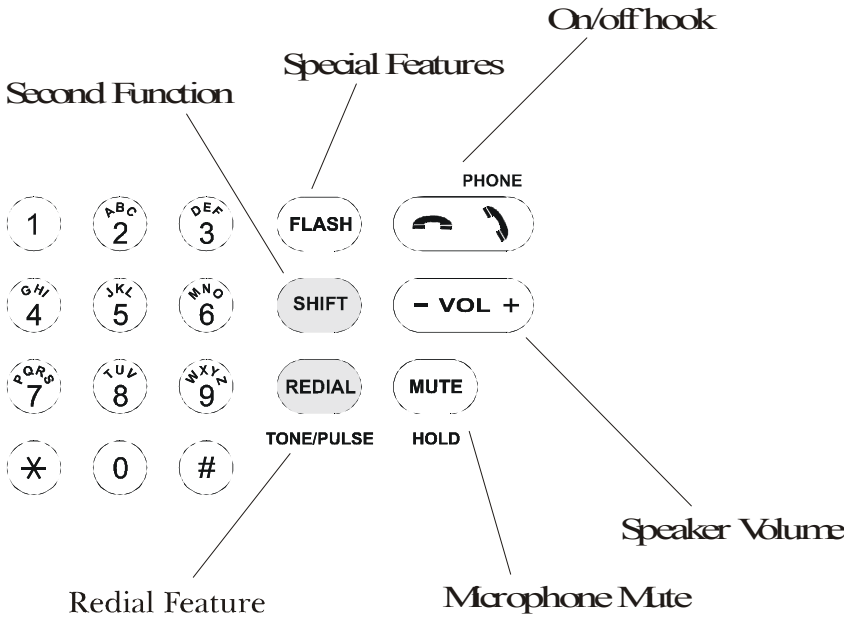


NOTE: Keep large sound reflecting objects such as water carafes and briefcases at least 0.3 meter (1 foot) away from the ACU.

WARNING !!

The system is designed to cope with the worst acoustic and line conditions and will ensure good performance, even at maximum volume. Minimum howling or sound distortion can be avoided by reducing the volume, especially during the first 60 seconds of operation.

3. USING THE AUDIO CONFERENCING UNIT



3.1. Adjusting the phone ringer volume.

A ringer volume switch is available with "SILENT", "LOW", and "HIGH" positions on the bottom side of the UNIT.

3.2. electing pulse dialing

Press SHIFT, then press REDIAL to select the PULSE dialing mode. The UNIT reverts to tone mode when cycled off or when the SHIFT REDIAL is pressed again. You will hear a tone for each toggle.

3.3. Outgoing calls

Press and dial the desired telephone number. The three LEDs on the corners of the AUDIO CONFERENCING UNIT will switch to green.

After the conversation has finished, press the and the three LEDs will turn yellow.

3.4. Incoming calls

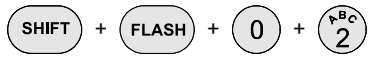
When a call comes in, a ringing signal is heard. At the same time the LEDs flash.

Press key to activate the hands-free function.

3.5. Phonebook

3.5.1. Memorization

Check that the handset is on-hook ( ), then press SHIFT and FLASH; the music and the yellow LED's flashing indicate the phonebook mode.
Select the memorization code (00 ÷ 99) on the keypad.

example: 

The green LED's start flashing to indicate that the location is free. Dial the telephone number (maximum 40 figures).

Press FLASH to end the operation. You will hear music that confirms the number memorization.

3.5.2. Cancelling the operation

To cancel the operation, press SHIFT and FLASH and then follow the instructions for memorization.

3.5.3. Cancelling the number

To cancel a number from the phonebook, digit:

SHIFT + FLASH + 0 + LOCATION +

- If the red LED'S start flashing press FLASH to cancel the number.
- If the green LED'S start flashing, the selected location is free.

3.5.4. Location not free

If flashing, the red LED's indicate that the location is not free. To cancel the operation press SHIFT and FLASH and then follow the instructions for memorization.

3.6. Calling a memorized number

Check the code that corresponds to the user name in the phonebook.

Press key to activate the hands-free function, then press SHIFT and dial the number code (00 ÷ 99)

example: SHIFT + 0 + ABC 2

The number is dialed.

The memorization codes range from 00 to 99.

3.7. Speaker Volume

When the call is in progress press and release + VOL or - VOL several times to increase or to decrease the volume through the speaker. The green light will blink each time you depress the volume button. When the unit reaches maximum volume, the green light will blink several times. There are 24 volume levels for speaker volume. After the conversation has ended the AUDIO CONFERENCING UNIT reverts to the default volume level.

3.8. Redial

To dial the last telephone number dialed press REDIAL.

3.9. Phone

For privacy, you may connect a regular phone to the Audio Supply Module. You may revert to using the handset at any time.
When the UNIT is off, lift the headset. The three LEDs on the corner will go off. You may then use the handset to establish a call, to dial a telephone number or to end the call.
To go back to hands-free mode, hang-up the handset. The three LEDs will turn yellow.

!

Once a call is connected, you may also revert to using the handset.
First lift the handset, the three led on the corner will go off.

To return to hands-free mode, press and hang up the handset.

3.10. Mute

To cut off outgoing sound during a call, press MUTE. The LEDs will turn red. Your microphones are off and your voice is not being transmitted. To switch off the mute, press the MUTE key again. The LEDs will turn green.

NOTE: you can also mute the entire system by depressing the mute button on either of the 2 extension microphones

3.11. Hold

To mute both the outgoing and incoming sound during a call, press SHIFT then MUTE. The LEDs will turn on and flash red. While the hold function is being used, all microphones and your speaker are off. To return to hands-free mode, press the MUTE or the ON key again.

3.12. Flash

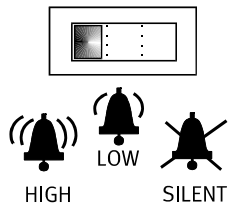
When a call is in progress, press FLASH to transfer the call from one set to another. After the dial tone has been heard, the caller can transfer the call by dialing the desired telephone number and hanging up the UNIT by pressing the .

3.13. Recorder output

To record an audio conference session connect the recorder unit to the RCA jack available on the AUDIO SUPPLY MODULE.

3.14. Switch settings

The switches on the bottom of the ACU let you adjust the phone ringer volume.



FUNCTION	RING LEVEL
HIGH	+4 dB
LOW	-8 dB
SILENT	-100 dB

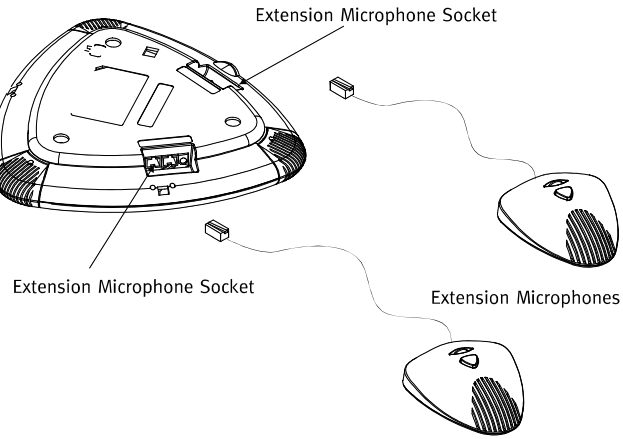
4. USING EXTENSION MICROPHONES

The Audio Conferencing Unit External microphones have excellent unidirectional characteristics that optimize voice pickup while eliminating background noise.

Together with a voice activated circuit that keeps unused microphones attenuated, the ACU with External Microphones solves the common problems found in large-group audio conferencing applications.

4.1. Connecting extension microphones

Connect the microphone cables to the Audio Conferencing Unit as shown in the figure below:

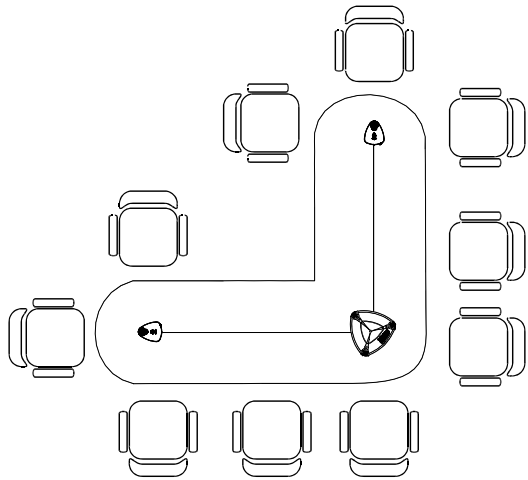


4.2. Setting up of the external microphones for the best pickup

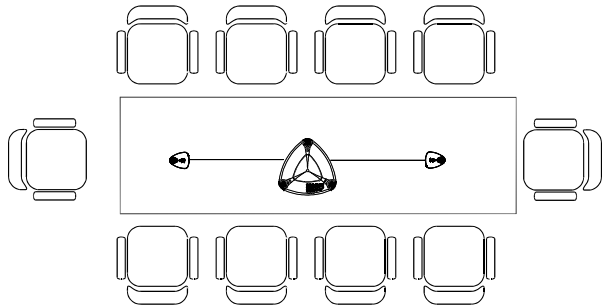
To ensure the best performance:

- Set the extension microphones
  1.5-2 m (5-7 ft) from Audio Conferencing Unit.
- participants should sit 1 m (3 ft) from microphone.

The following examples show several positions of the external microphones for the best pickup.



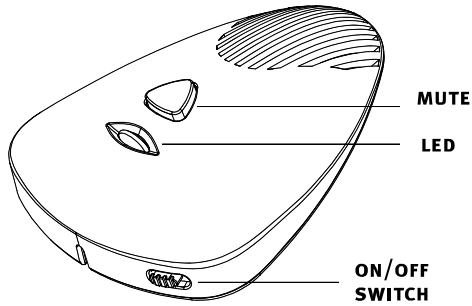
Example 1



Example 2

4.3. Switching on a microphone

Turn on the microphone using the ON/OFF switch. The led will turn green.



4.4. Muting a microphone

To mute all microphones and the Audio Conferencing System press MUTE. The led will turn red. To resume the communication depress the MUTE button and the LED will turn green.

To shut off a single extension microphone, switch to OFF the ON/OFF switch. The LED MUTE will turn red.

Switch to the ON position and the microphone is activated again.

5. TROUBLESHOOTING AND MAINTENANCE

5.1. Preventive maintenance

- DO unplug the SUPPLY MODULE and the ACU before cleaning.
- DO check cables for kinking or tearing, especially in floor traffic areas.
- DON'T use volatile solvents to clean surfaces. A clean, soft cloth, lightly moistened, is usually adequate. If a spray or paste cleaner is used, DON'T let it clog the microphone or loudspeaker openings.
- DON'T risk fire or electrical shock by placing the SUPPLY MODULE on a wet surface or spilling liquid on it.
- DON'T place the SUPPLY MODULE on a radiator or other heat sources.

5.2. Troubleshooting

Problem	Corrective Action
No dial tone	1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet. 2. Verify that the green light glows steadily. 3. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE. 4. Make sure telephone line is not a digital PABX line, but is a standard analog telephone line
Problem	Corrective Action
Dialed party can't hear conversation originating from your end of the call	1. Verify that the mute and hold functions are off. 2. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE .
No conference operation	1. Make sure the power supply cable is plugged into a working 120 Vac, 60 Hz outlet. 2. Verify that the green light glows steadily. 3. Make sure telephone line is plugged into telephone line connector on the SUPPLY MODULE . 4. Make sure the ACU is properly connected to the SUPPLY MODULE .

ACU loudspeaker sound is too low	Press the VOL + key on the ACU until an adequate volume is reached.
ACU loudspeaker sound is too loud	Press the VOL - key on the ACU until an adequate volume is reached.
Received speech intermittent without being interrupted by local sounds	1. If remote party is using a teleconferencing system, tell them to move their system away from large objects or reflective surfaces. 2. Bad telephone connection (remote party may be using a cellular phone or a radio telephone). Hang up and try calling again.
Low-level conversation or pulses can be heard from loud-speaker.	"Cross talk" on the telephone line or in the PBX may be present. Hang up and re-dial. If the condition persists, contact your telephone service provider.
Remote party complains that your voice is garbled	Move your ACU away from any large reflective surfaces.
Volume will go up, but not down (or vice-versa). Module emits a howling sound	Volume is at the minimum or maximum level already. 1. make sure the telephone line is connected to the SUPPLY MODULE . 2. Make sure the telephone line is a standard analog telephone network.
No ringing signal .sounds to indicate incoming calls	Check switch settings on ACU. Move Ringer tone switch to “LOW” or “HIGH” position.

6. TECHNICAL SPECIFICATIONS

AUDIO BANDWIDTH	200Hz - 3400Hz
LOUDSPEAKER VOLUME	Adjustable +12dB/-12dB Maximum sound level 78dBSPL
MICROPHONES	3 per module unidirectional hypercardioid type
ADAPTIVE ACOUSTIC ECHO CANCELLER	ERLE 30 dB typical
ADAPTIVE LINE ECHO CANCELLER	ERLE 36 dB typical
ADAPTIVE NOISE REDUCTION FILTER	Noise attenuation 10 dB typical
ADAPTIVE ECHO REDUCTION	Residual Echo Level is reduced at the adaptive estimation of the Tx noise level
AUX OUTPUTS	Line Level > 100 Ohm
NETWORK INTERFACE	RJ-11 Type single line analog on PSTN
POWER REQUIREMENTS	104-126 VAC 188mA maximum
DIMENSIONS	ACU: 30cm x 30cm x 7cm SUPPLY MODULE: 10cm x 20cm x 6.5cm
WEIGHT	ACU: 1 Kg SUPPLY MODULE: 0.850 Kg
LINE VOLTAGE	115/230 VAC 60/50 Hz with Voltage selector switch
TEST FREQUENCY	1kHz
MAXIMUM TOTAL HARMONIC DISTORTION	Tel Line output 0.5% at -12dBm Speaker output: 0.5% at 78 dBSPL
MUTING	100dB minimum attenuation of transmit signal
LINE LOSS COMPENSATOR RANGE	+12dB/-6dB
SPEECH LEVEL COMPENSATOR RANGE	+12dB/-6dB

AMBIENT TEMPERATURE RANGE	Operating: 5°C to 45°C Storage: -25°C to 55°C
CERTIFICATION	UL, FCC, CE, CSA

6.1. Use and storage conditions

OPERATING TEMPERATURE	-5°C ÷ +45°C
OPERATING RELATIVE HUMIDITY	10% ÷ 93% non condensino
STORAGE TEMPERATURE	-25°C ÷ +55°C

6.2. Reference regulations (CE mark and reliability tests)

STORAGE	CEI 50-3 CEI EN 60068-2-1 IEC 68-2-2
TRANSPORT	CEI 50-6 IEC 68-2-32 IEC 68-2-36
OPERATING CONDITIONS	CEI 50-3 CEI EN 68068-2-1 IEC 68-2-2 IEC 68-2-3 IEC 68-2-14 CEI 50-6 IEC 68-2-31 IEC 68-2-32 IEC 68-2-36
CONDUCTED EMISSIONS	CEI EN 55022
IRRADIATED EMISSIONS	CEI EN 55022
IMMUNITY	CEI EN 50082-1
SAFETY	CEI EN 60950

CE This product complies with EEC 89/336 directive on electromagnetic compability, EEC 73/23 directive (Low Voltage) on safey rules and EEC 91/263 directive on telecommunication devices, as amended by EEC 92/31 and 93/68 directives

7. FCC REQUIREMENTS

This equipment complies with Part 68 of the FCC rules. On the rear panel of this equipment is a label that includes, among other information, the FCC Registration Number and Ringer Equivalence Number (REN) for this equipment. (The REN for the ACU is 0.8). You must, upon request, provide this information to your telephone company.

The REN is useful to determine the quantity of devices you may connect to your telephone line and still have all those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices you may connect to your line, as determined by the REN, you should contact your telephone company to determine the maximum REN for your calling area.

If your telephone equipment causes harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advance notice isn't practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

WARNING

This device is designed for use with the Public Switched Telephone Network (PSTN) into an analog phone line through an RJ11 jack (same type used with fax machines. The telephone cable included with your AUDIO CONFERENCING SYSTEM is for use with an RJ11 (standard single line) telephone interface.

WARNING

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna
- increase the separation between the equipment and the receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help.

8. CTR21 APPROVAL WARNING

This equipment has been approved in accordance with Council Decision 98/482/EC for pan-European single terminal connection to the public switched telephone network (PSTN). However, due to differences between the individual PSTNs provided in different countries, the approval does not, of itself, give an unconditional assurance of successful operation on every PSTN network termination point.

In the event of problems, you should contact your equipment supplier in the first instance

NETWORK COMPATIBILITY DECLARATION

This equipment has been designed and tested to interwork with all the public switched telephone networks of the European Union.